

II. AMENDMENT TO THE CLAIMS

The listing of claims replaces all prior versions, and listings, of claims of the application.

1. (Currently amended) A self-aligned bipolar transistor structure comprising:
a raised extrinsic base including:
an outer region;
an inner extension region extending laterally inward from the outer region toward an emitter, the inner extension region having a non-uniform width and horizontally non-overlapping the outer region; and
an intrinsic base positioned below the raised extrinsic base, the intrinsic base being separated from the outer region by a dielectric layer positioned above the intrinsic base.
2. (Original) The transistor of claim 1, wherein the outer region is separated from an intrinsic base outer region by a dielectric layer.
3. (Original) The transistor of claim 1, wherein the inner extension region defines an opening into which the emitter is self-aligned to the raised extrinsic base.
4. (Original) The transistor of claim 1, further comprising a spacer between the inner extension region and the emitter.
5. (Original) The transistor of claim 1, wherein the emitter has a width less than 0.1 microns.

6-9. (Cancelled).

10. (Original) The transistor of claim 1, wherein only the inner extension region contacts the intrinsic base.

11. (Original) The transistor of claim 1, wherein the outer region has a first doping concentration and the inner extension region has a second doping concentration, and the second doping concentration is different than the first doping concentration.

12. (Currently amended) A transistor comprising:

a raised extrinsic base including:

an outer region that contacts an intrinsic base at a first location; and

an inner extension region distinct from the outer region, the inner extension region contacting the outer region and contacting the intrinsic base at a second location laterally inward and separated from the first location by a separation portion,

wherein the outer region has a first doping concentration and the inner extension region has a second doping concentration, and the second doping concentration is higher than the first doping concentration.

13. (Cancelled).

14. (Original) The transistor of claim 12, wherein the outer region includes a polysilicon and the inner extension region includes one of silicon and polysilicon.

15 - 30. (Cancelled).

31. (Currently Amended) A self-aligned bipolar transistor structure comprising:

a raised extrinsic base including:

an outer region;

an inner extension region extending laterally inward from the outer region toward an emitter, the inner extension region having a non-uniform width and horizontally non-overlapping the outer region; and

an intrinsic base positioned below the raised extrinsic base;

wherein the outer region and the inner extension region each contact the intrinsic base and the outer region also contacts an intrinsic base outer region that is positioned over a shallow trench isolation and below the outer region..

32. (Previously Presented) The transistor of claim 31, wherein the outer region contacts the intrinsic base at a first location separated from a second location where the inner extension region contacts the intrinsic base.

33. (Previously Presented) The transistor of claim 31, wherein the inner extension region defines an opening into which the emitter is self-aligned to the raised extrinsic base.

34. (Previously Presented) The transistor of claim 31, further comprising a spacer between

the inner extension region and the emitter.

35. (Previously Presented) The transistor of claim 31, wherein the emitter has a width less than 0.1 microns.

36. (Cancelled).

37. (New) A self-aligned bipolar transistor structure comprising:

a raised extrinsic base including:

an outer region;

an inner extension region extending laterally inward from the outer region toward an emitter, the inner extension region horizontally non-overlapping the outer region; and

an intrinsic base positioned below the raised extrinsic base, the intrinsic base being separated from the outer region by a dielectric layer positioned above the intrinsic base, and

wherein only the inner extension region contacts the intrinsic base.

38. (New) A transistor comprising:

a raised extrinsic base including:

an outer region that contacts an intrinsic base at a first location; and

an inner extension region distinct from the outer region, the inner extension region contacting the outer region and contacting the intrinsic base at a

second location laterally inward and separated from the first location by an insulative separation portion.

39. (New) A self-aligned bipolar transistor structure comprising:

a raised extrinsic base including:

an outer region;

an inner extension region extending laterally inward from the outer region toward an emitter, the inner extension region horizontally non-overlapping the outer region; and

an intrinsic base positioned below the raised extrinsic base;

wherein the outer region and the inner extension region each contact the intrinsic base and the outer region also contacts an intrinsic base outer region that is positioned to horizontally overlap a shallow trench isolation below the outer region.